

# Coloquio CAPA

## *“The Magnetic Moment of the Muon Puzzle: New Physics or the Best Proof of Quantum Field Theory”*

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### Abstract:

In the last two decades or so there have been stronger and stronger disagreements between direct measurements of the anomalous magnetic moment of the muon and the standard-model prediction. Such a large discrepancy would be a signal for an interaction or particle not present in the standard model. However, already in 2020 a lattice QCD calculation suggested a "no-tension" scenario. I report on our new lattice QCD calculation, which reduced the uncertainty of our 2020 result by about 40%. The agreement between the measured value of the anomalous magnetic moment of the muon and its theoretical predictions is an extremely impressive prove of the validity of quantum field theory --with three very different calculational frameworks for QED, EW and QCD-- up to 11 digits.



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